

PATENT ABSTRACTS OF JAPAN

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 C08F220/28
 C08K 5/00
 C08L 33/02
 C08L 33/04
 G03F 7/004
 H01L 21/027

(21)Application number : 11-127296

(71)Applicant : FUJI PHOTO FILM CO LTD

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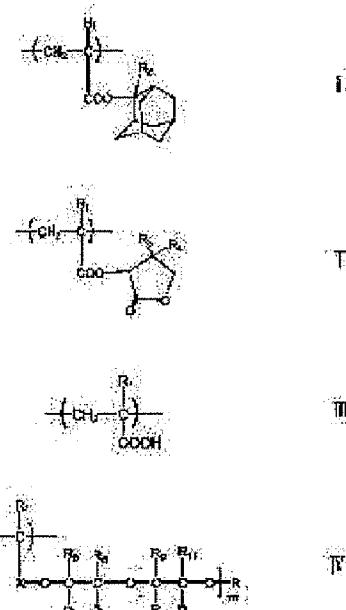
(72)Inventor : SATO KENICHIRO
 KODAMA KUNIHIKO
 AOSO TOSHIAKI

(54) POSITIVE TYPE RESIST COMPOSITION

(57)Abstract:

PROBLEM TO BE SOLVED: To make it possible to prevent the occurrence of development defects and to obtain excellent resist pattern profiles and the definition of contact holes by incorporating a resin which contains specific repeating units and is increased in a dissolution rate in an alkaline developer by the effect of an acid and a compound which generates the acid by irradiation with active rays or radiation into the above composition.

SOLUTION: This composition contains a resin which contains one kind of the repeating units of formula I and formula II, the repeating units of formula III, formula IV, etc., and is increased in a dissolution rate in the alkaline developer by the effect of the acid a compd. which generates the acid by irradiation with active rays or radiation. In the formulas I to IV, R₁ denote hydrogen atoms or methyl groups; R₂ denotes 1-4C alkyl group; R₃, R₄ denote hydrogen atoms, etc.; R₅ to R₁₂ denote hydrogen atoms or (substituted) alkyl groups; R denotes a hydrogen atom, etc.; (m) denotes an integer from 1 to 10; X denotes a single bond or bivalent groups, such as (substituted) alkylene group and cyclic alkylene group, which are alone or are combined and are not decomposed by the effect of the acid.



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特開2000-321771

(P2000-321771A)

(43) 公開日 平成12年11月24日(2000.11.24)

(51) Int.Cl. ⁷	識別記号	F I	マーク(参考)
G 0 3 F 7/039	6 0 1	G 0 3 F 7/039	6 0 1 2 H 0 2 5
C 0 8 F 220/04		C 0 8 F 220/04	4 J 0 0 2
220/18		220/18	4 J 1 0 0
220/28		220/28	
C 0 8 K 5/00		C 0 8 K 5/00	

審査請求 未請求 請求項の数 2 OL (全 32 頁) 最終頁に統く

(21)出願番号 特願平11-127296

(71)出願人 000005201

富士写真フィルム株式会社

神奈川県南足柄市中沼210番地

(22)出願日 平成11年5月7日(1999.5.7)

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(74)代理人 100073874

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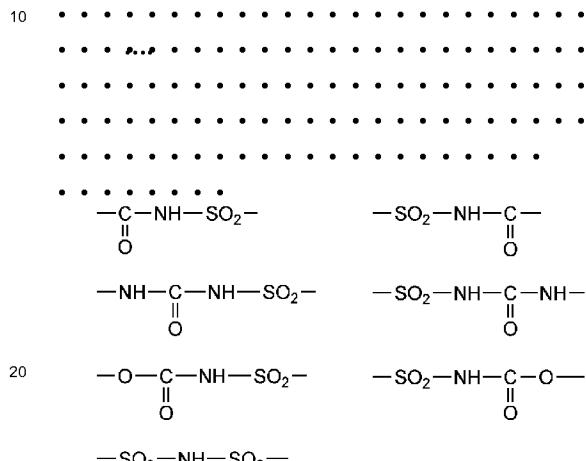
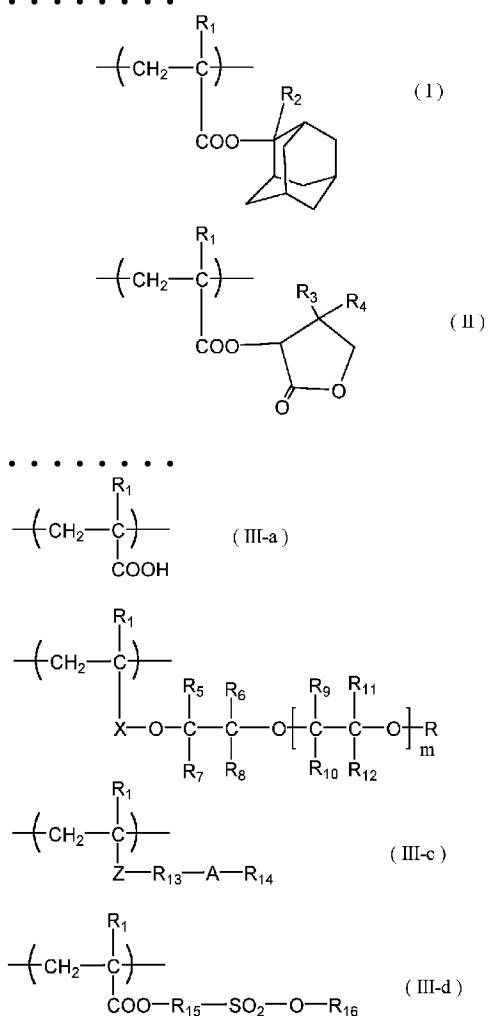
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(54) 【発明の名称】 ポジ型レジスト組成物

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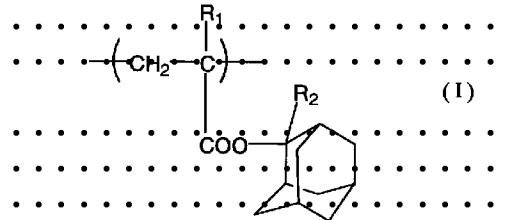
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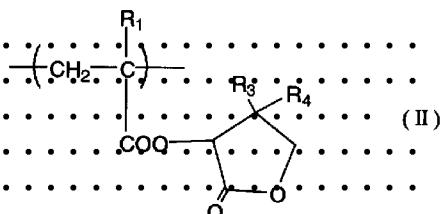
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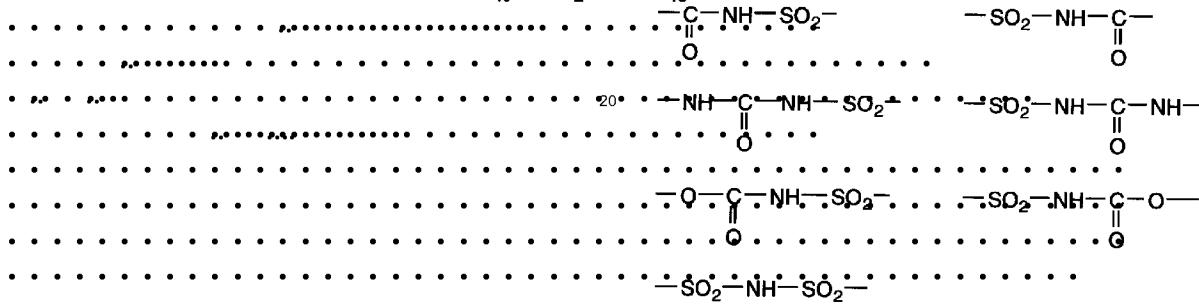
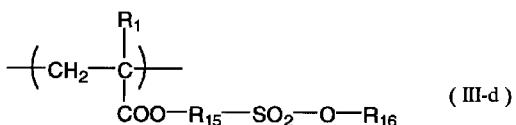
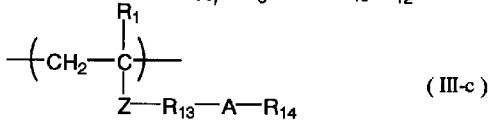
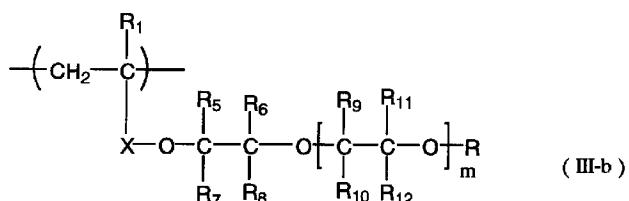
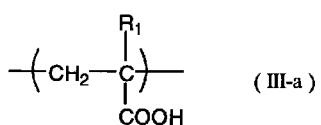
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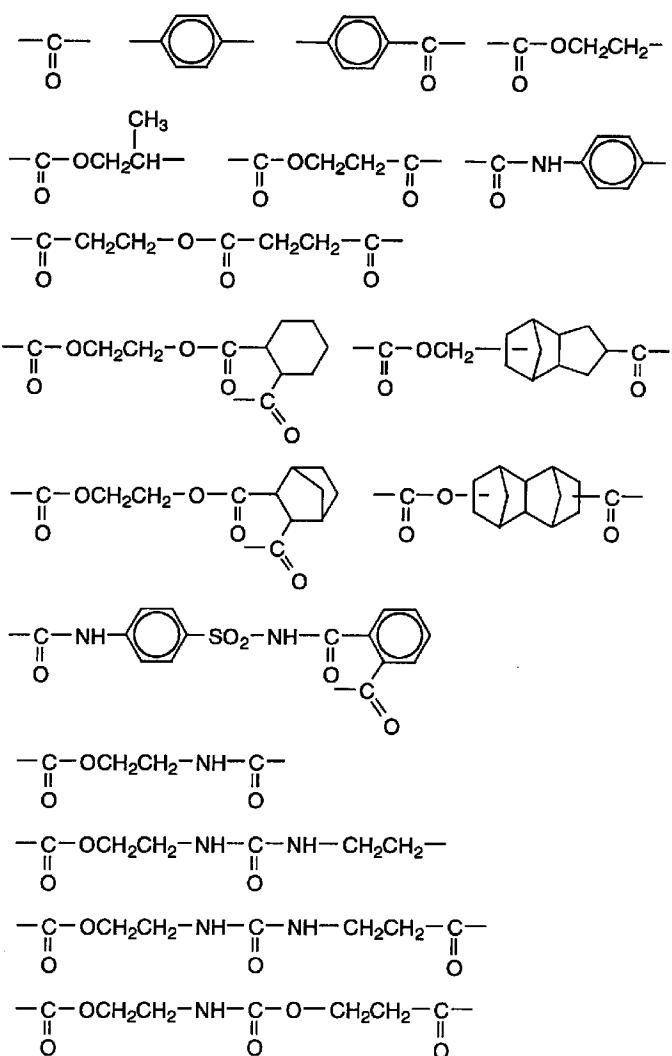
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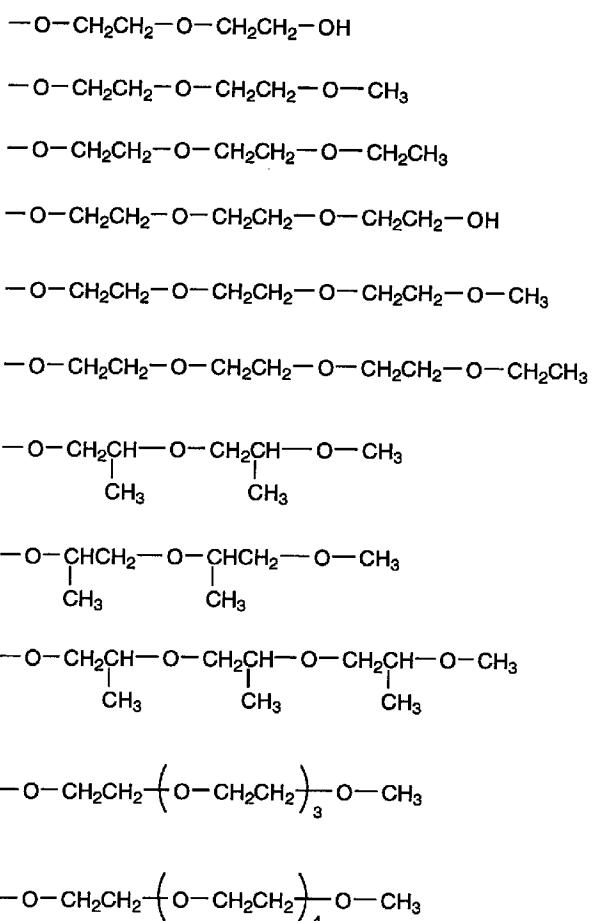
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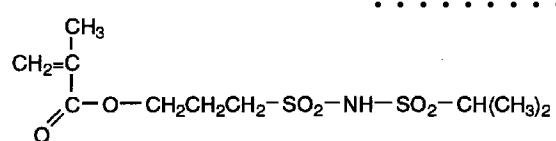


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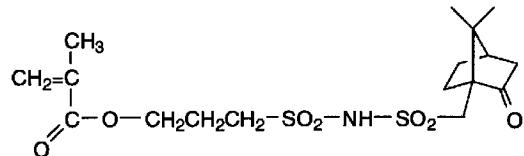
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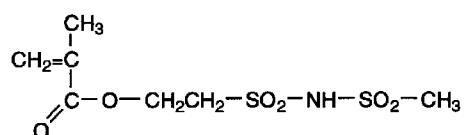
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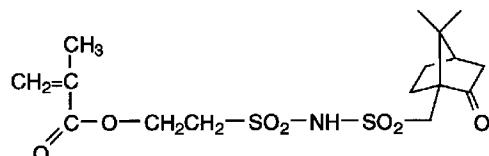
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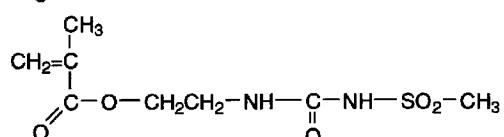
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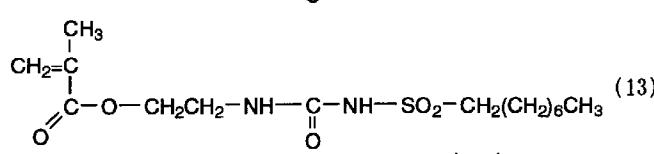
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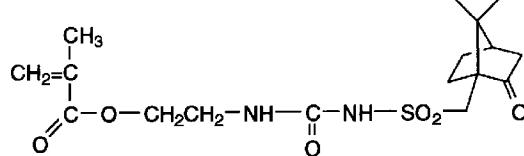
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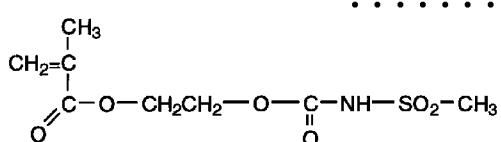
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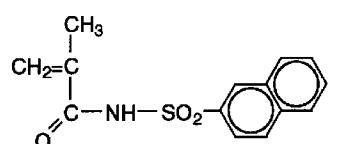
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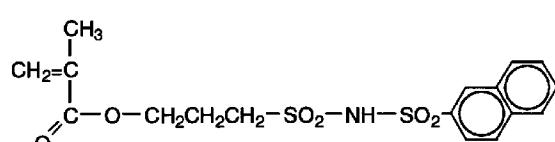
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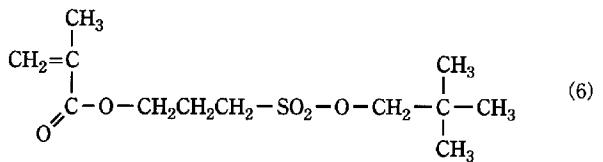
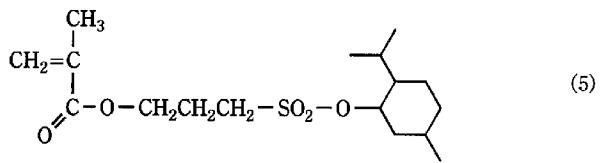
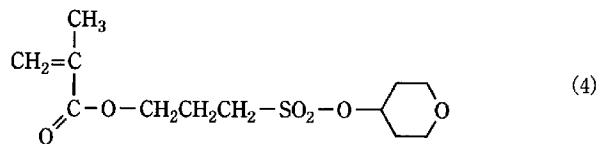
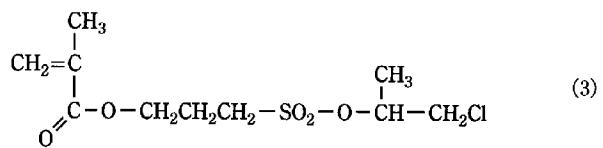
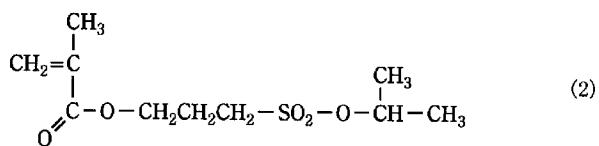
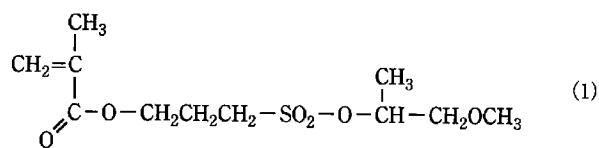
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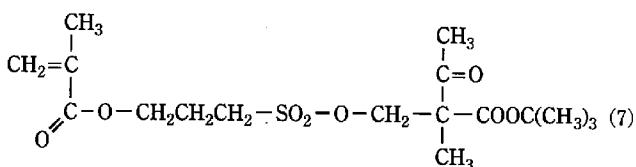


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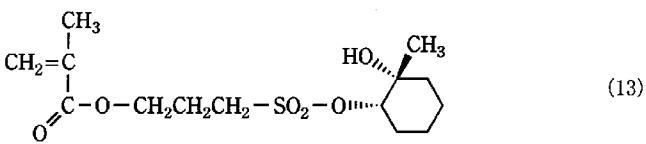
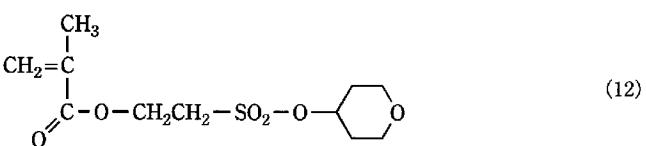
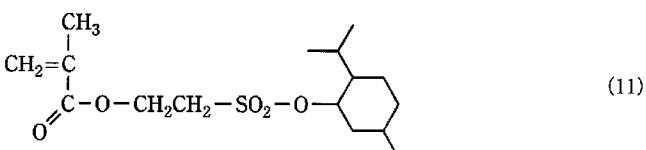
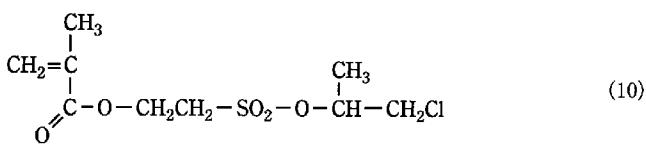
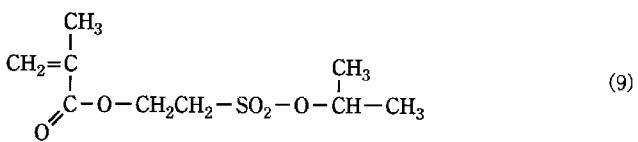
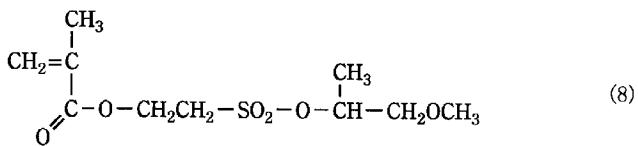
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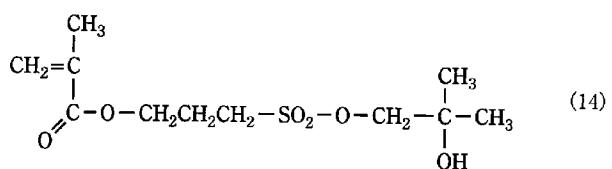


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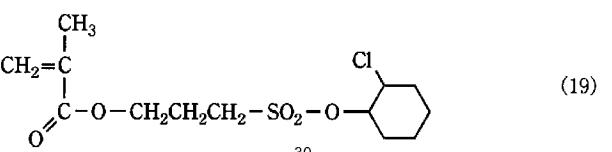
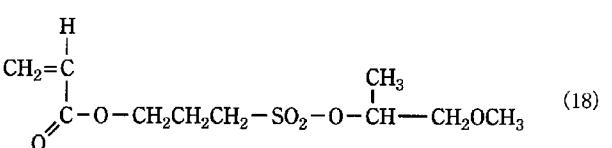
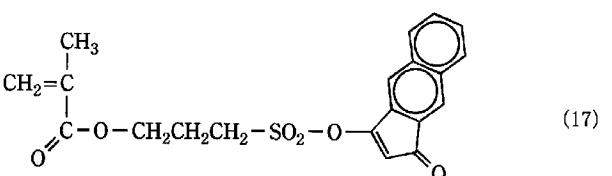
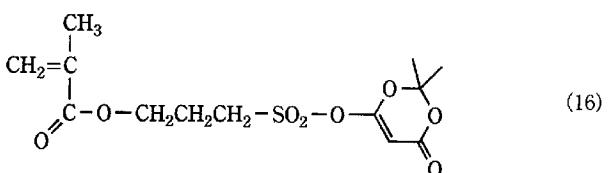
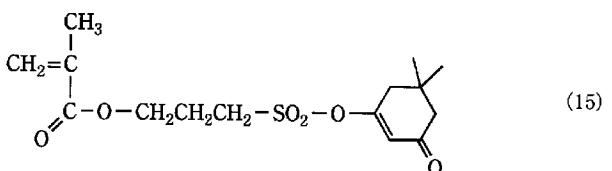
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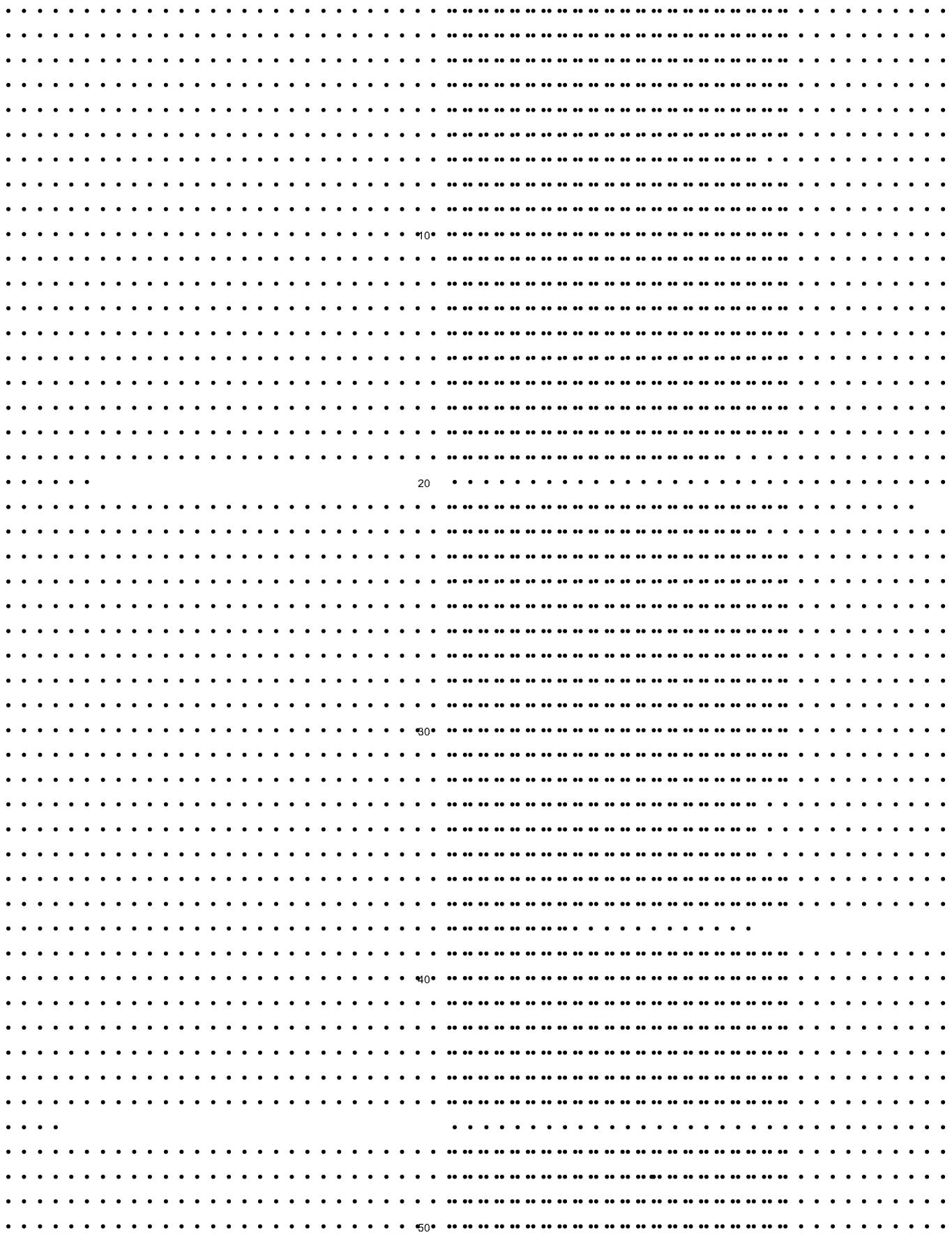
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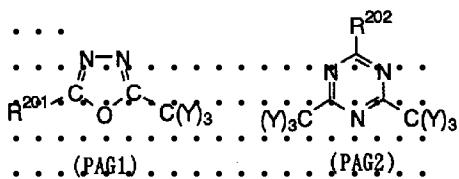
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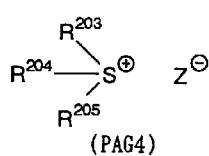
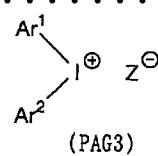
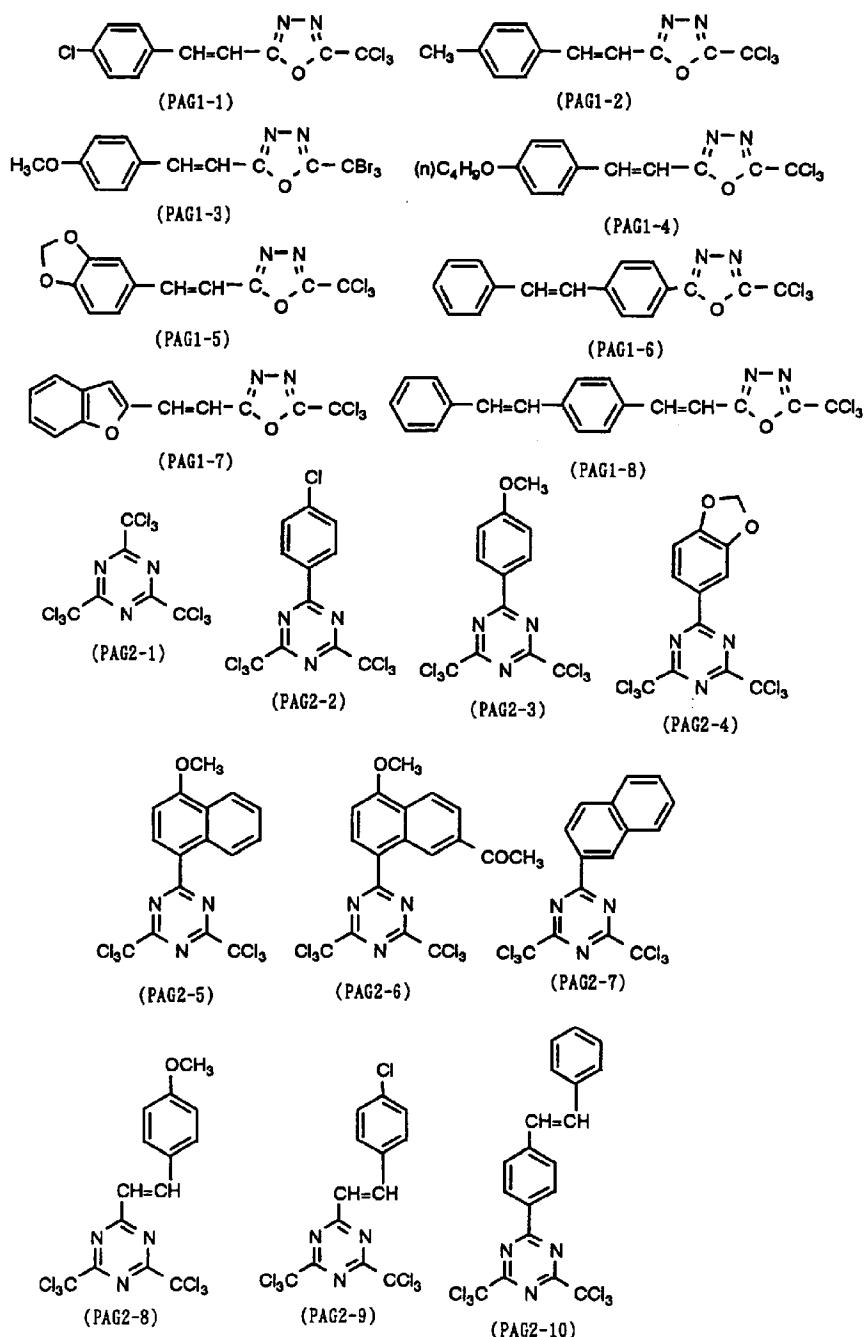
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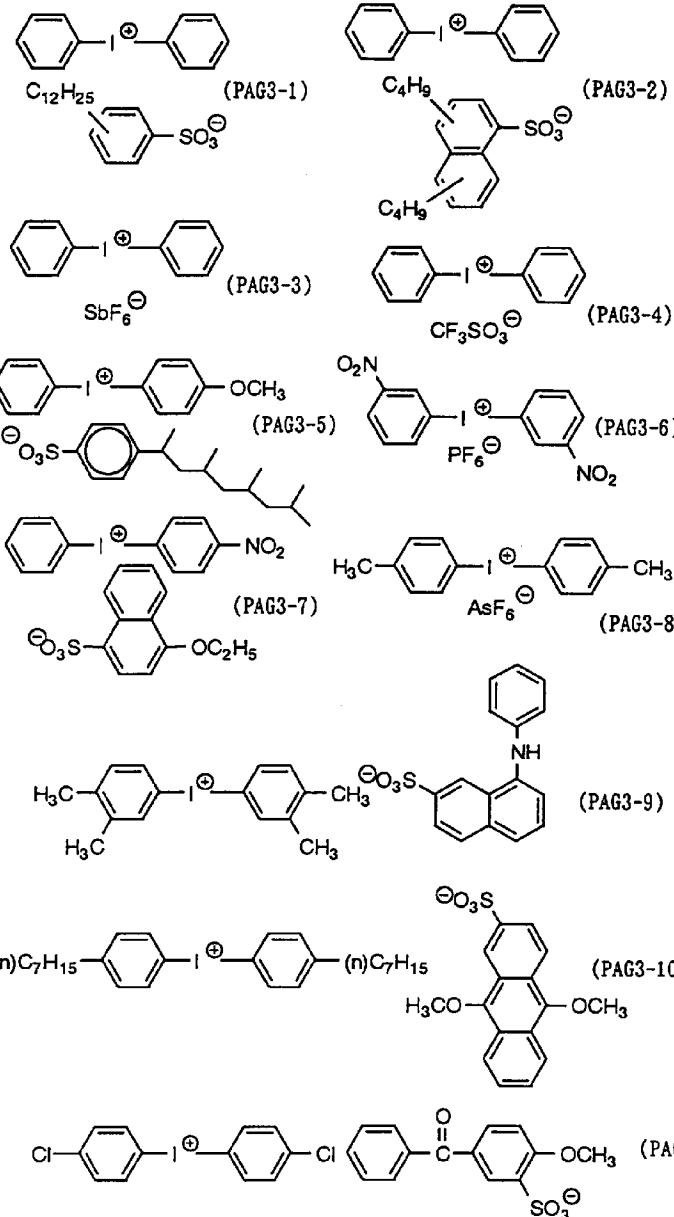
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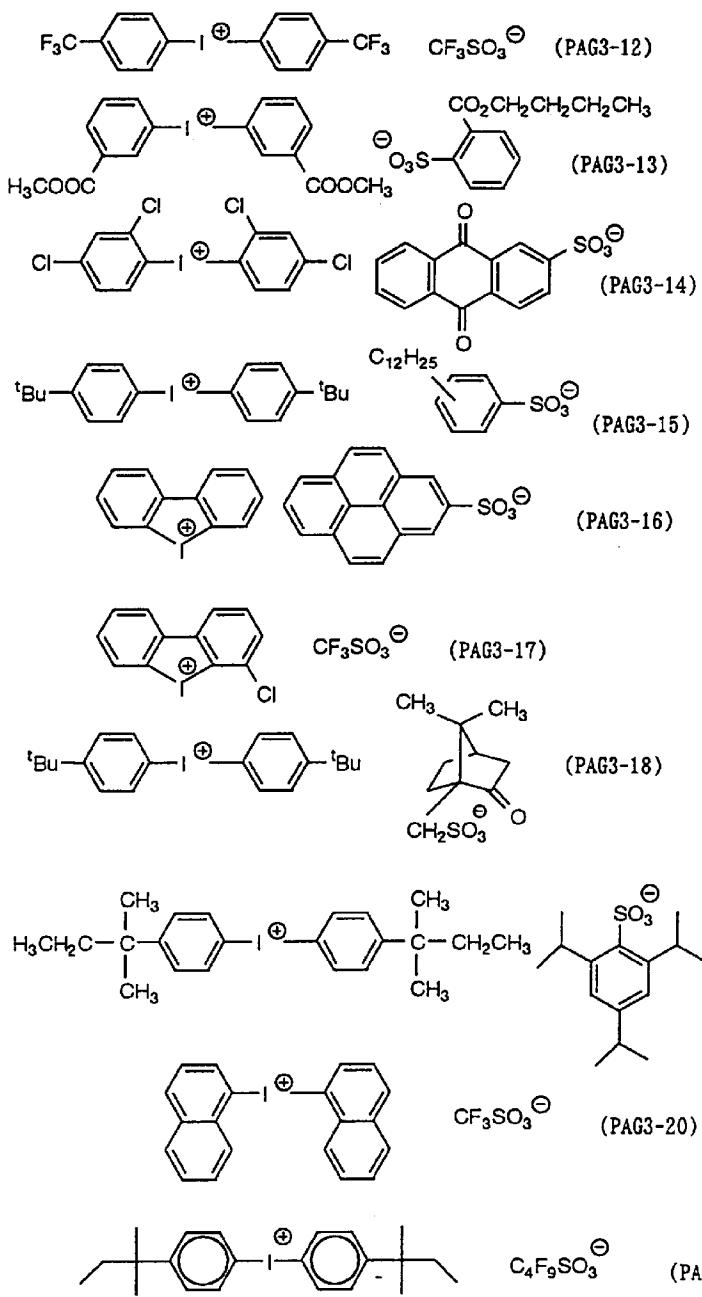


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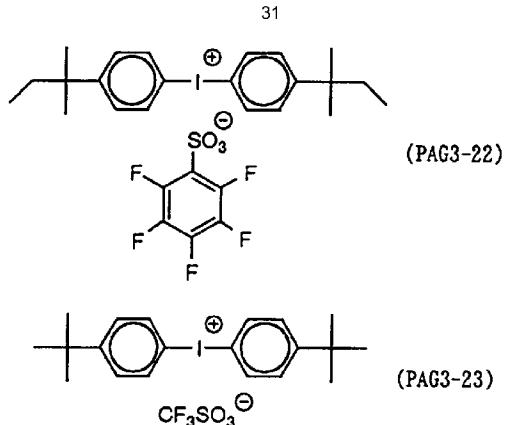
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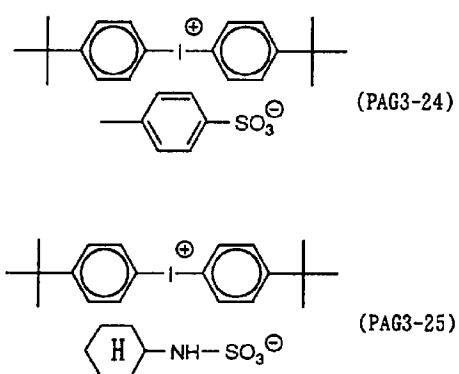




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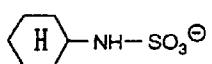


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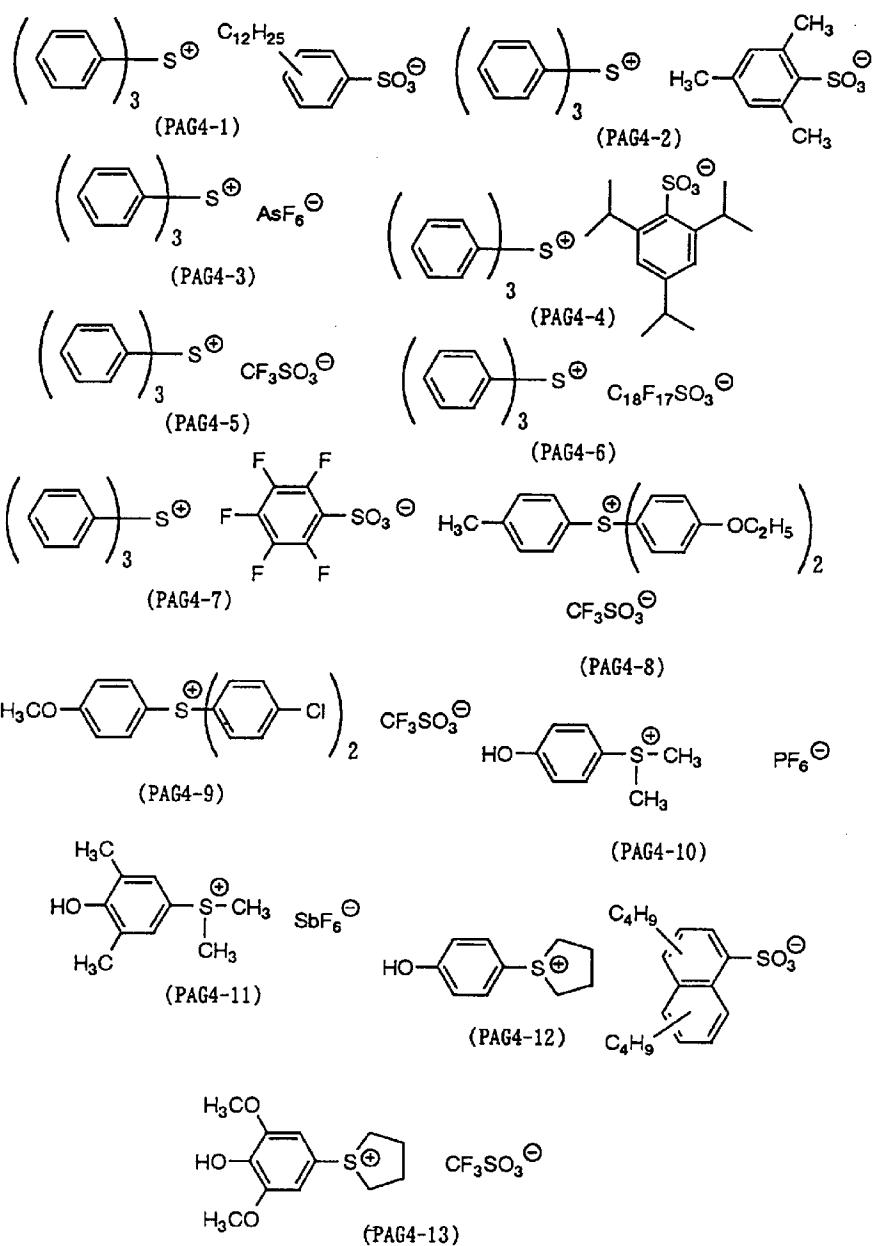
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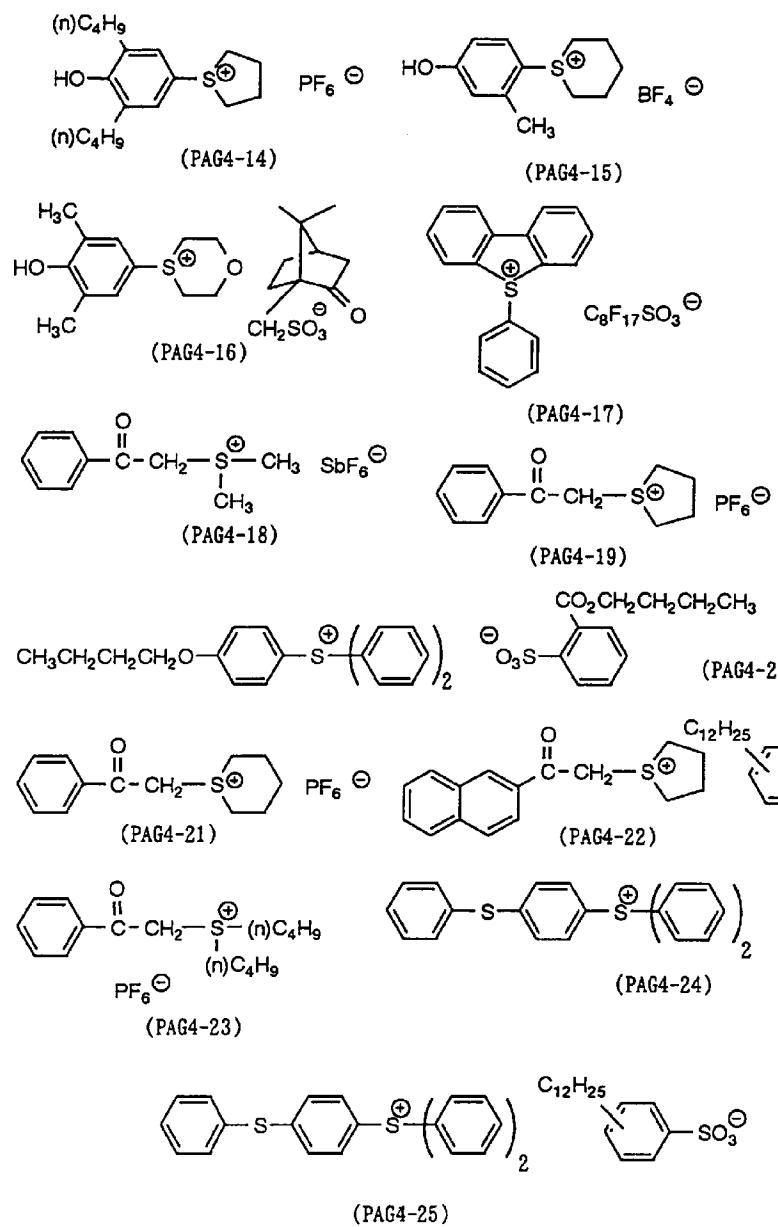
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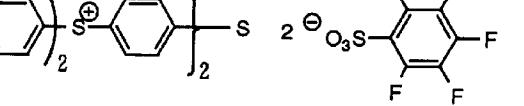
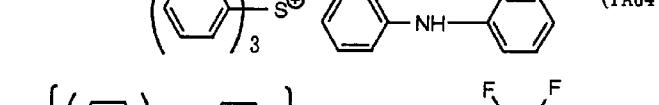
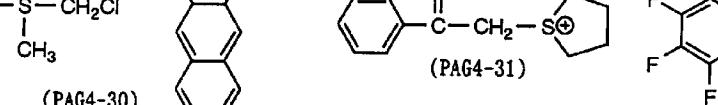
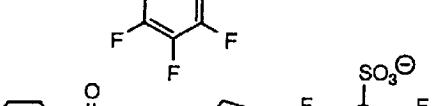
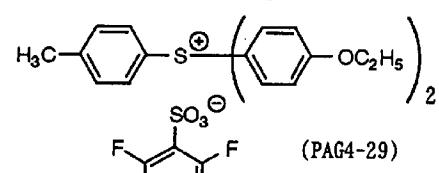
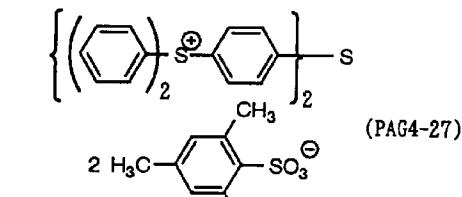
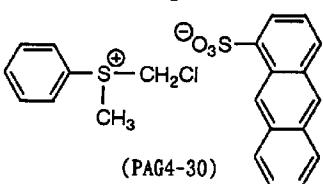
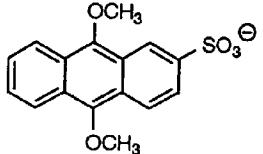
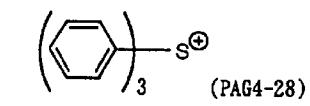
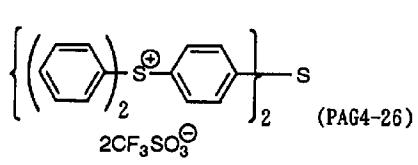
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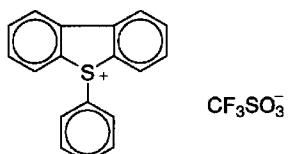
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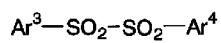


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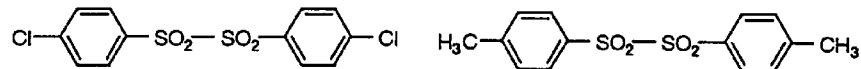
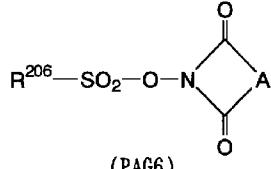


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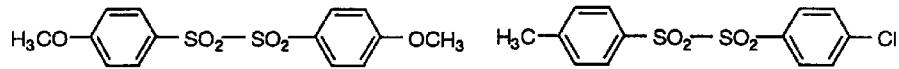




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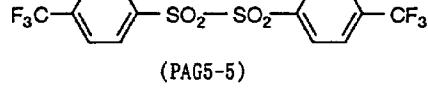
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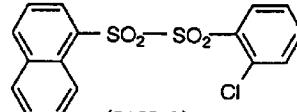
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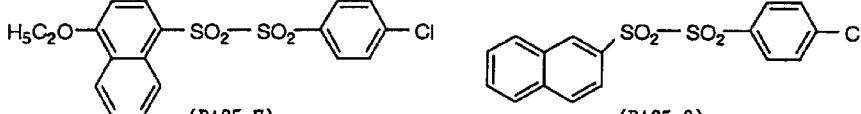
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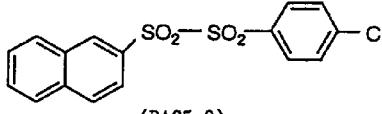
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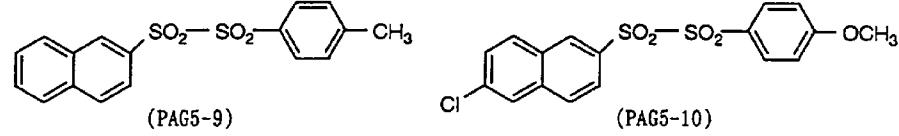
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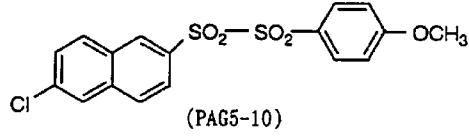
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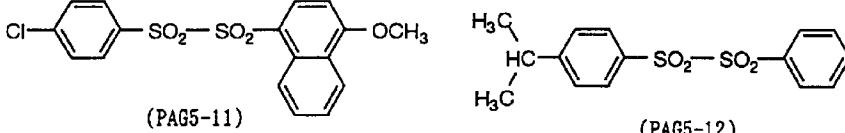
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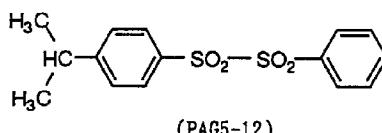
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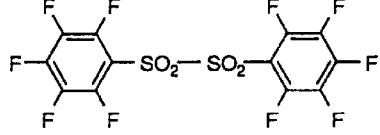
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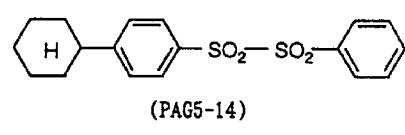
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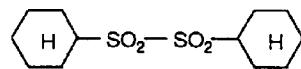
(PAG5-12)



(PAG5-13)

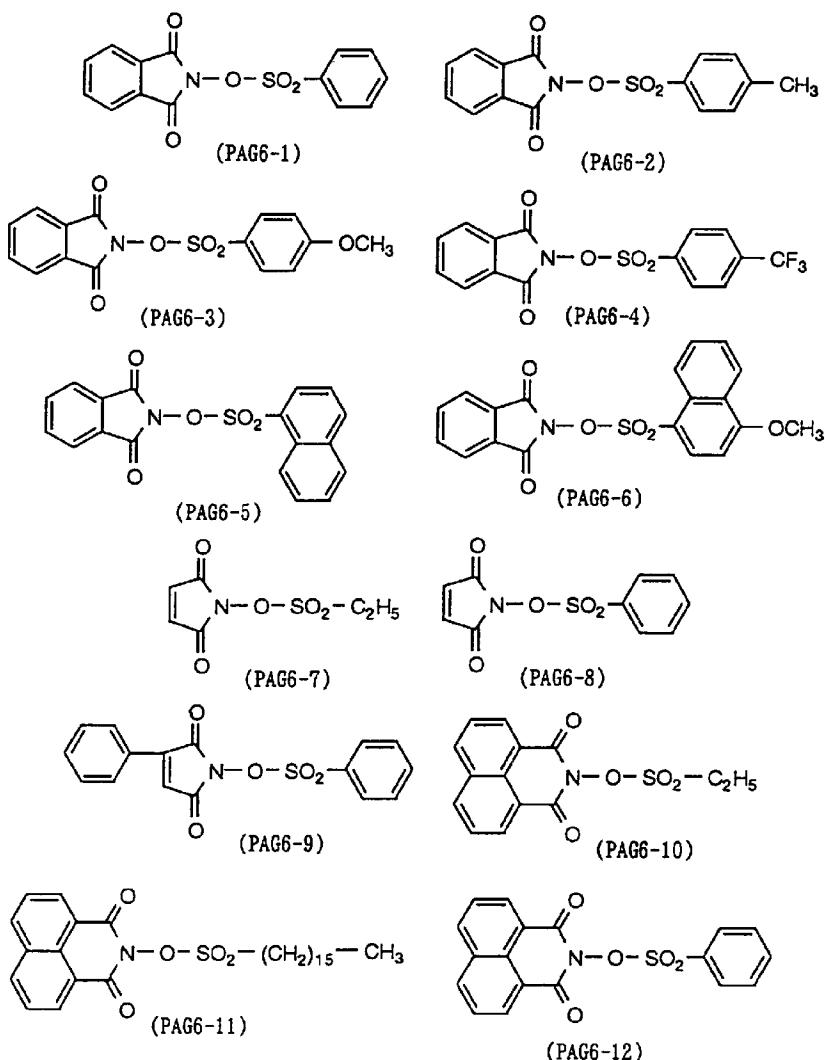


(PAG5-14)



(PAG5-15)

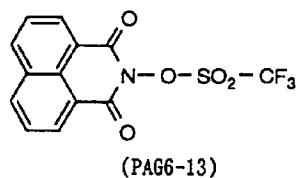
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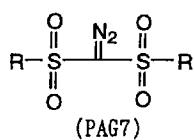
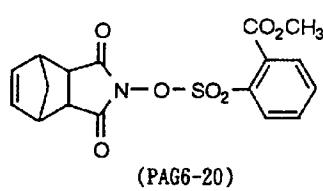
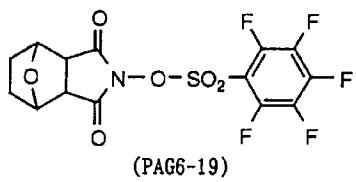
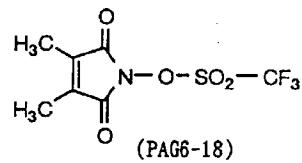
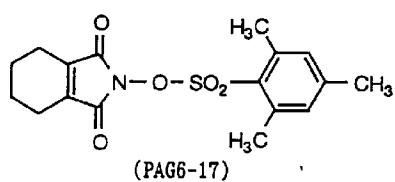
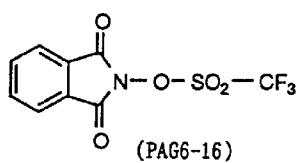
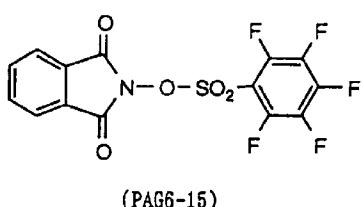
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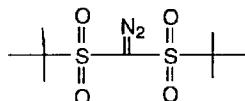
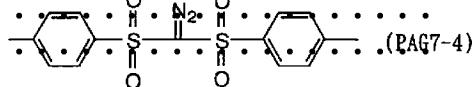
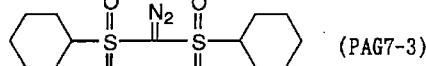
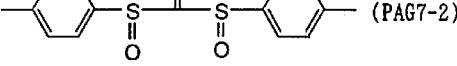
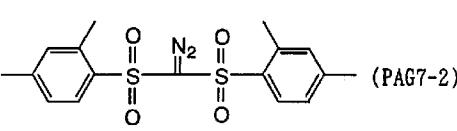
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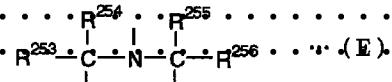
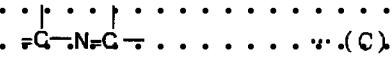
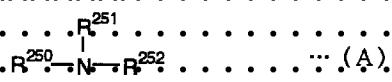


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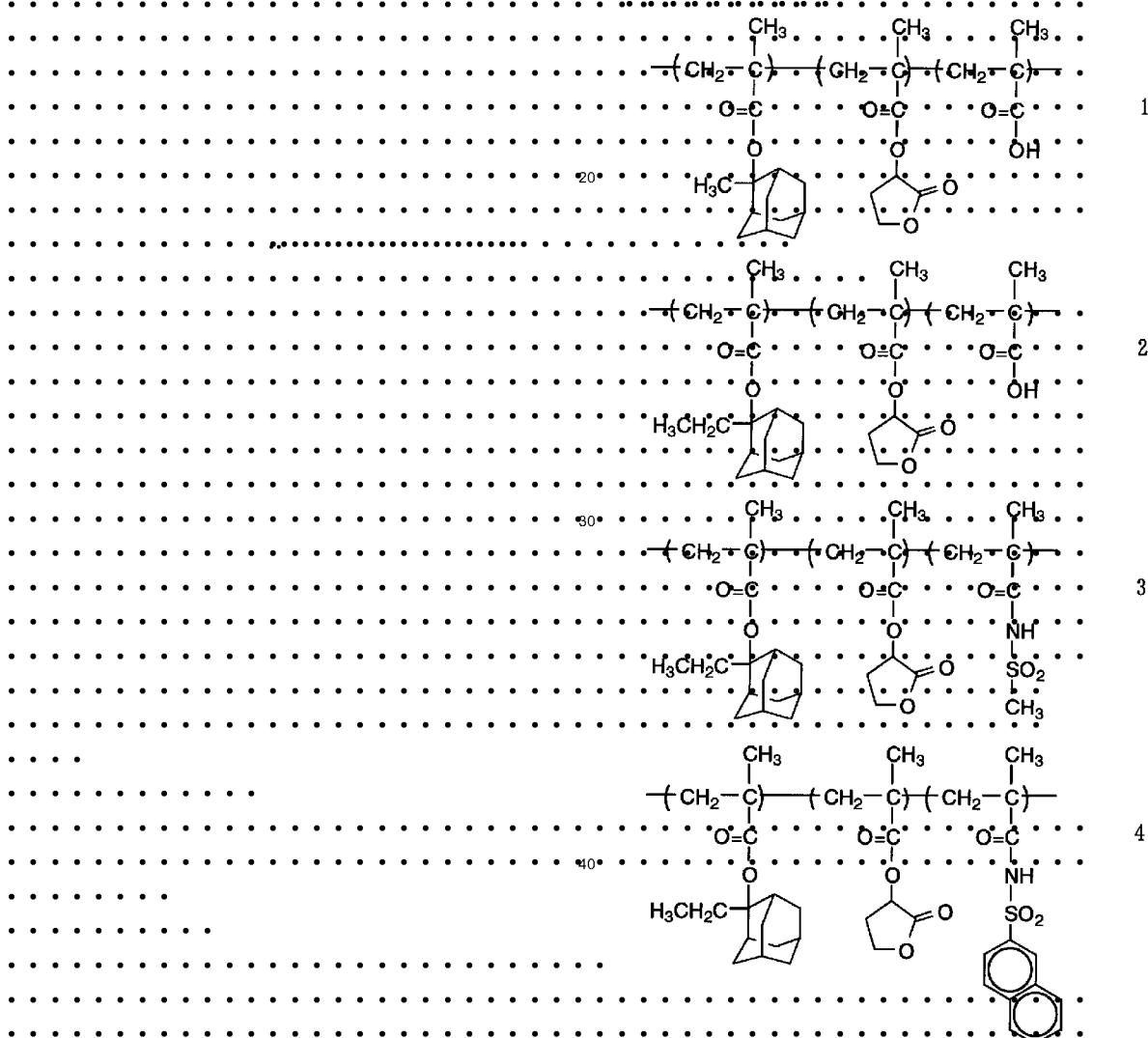
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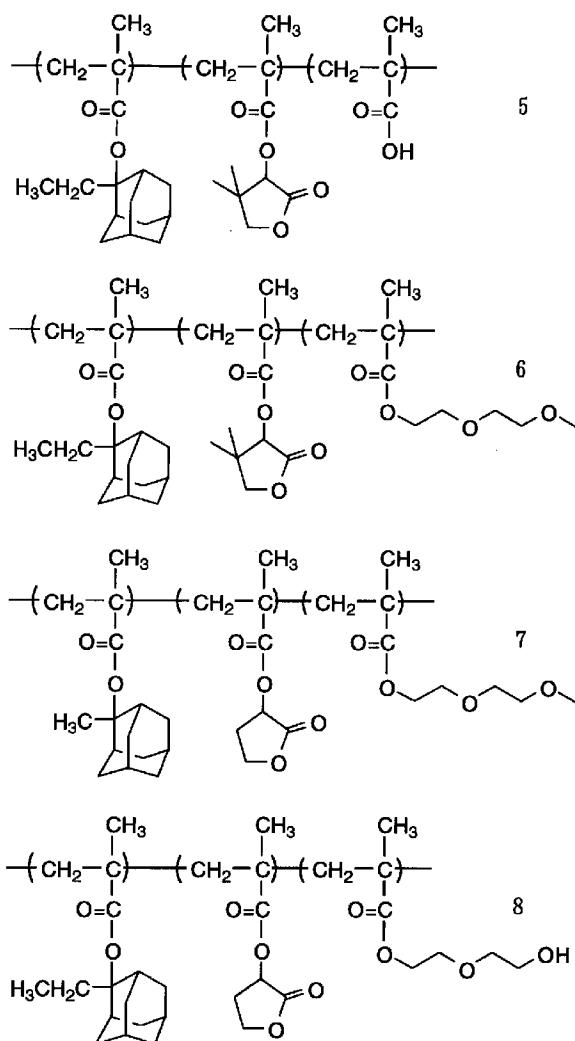
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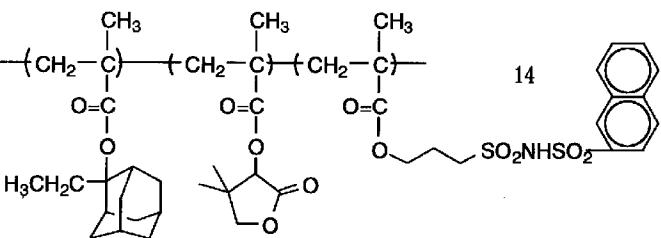
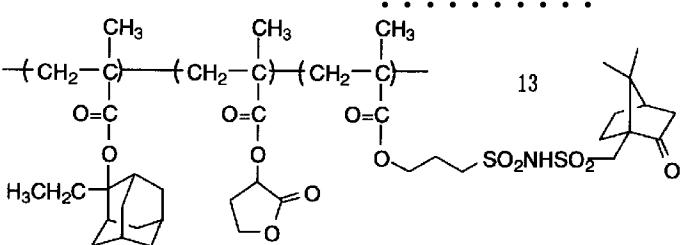
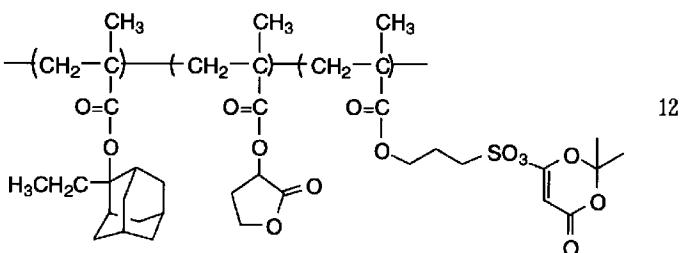
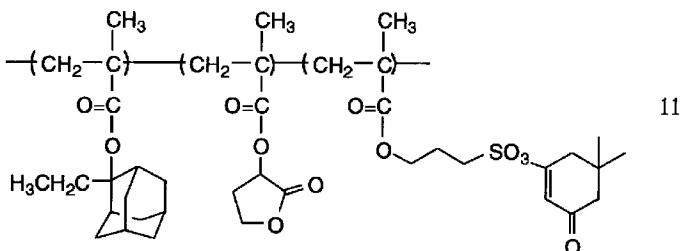
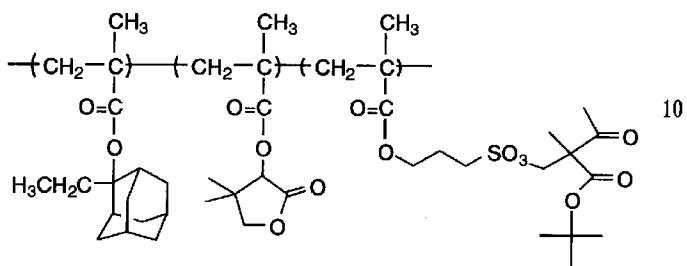
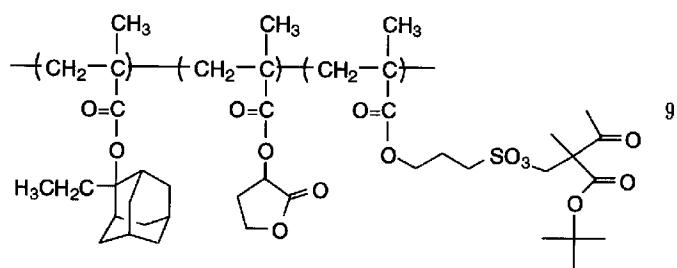
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樹脂	繰り返し単位1 (mol%)	繰り返し単位2 (mol%)	繰り返し単位3 (mol%)	分子量
1-2	40	48	12	10600
1-3	40	44	16	10100
2-1	43	49	8	9500
2-2	41	45	14	9200
3-1	41	51	8	10400
3-2	42	47	11	9600
4-1	40	55	5	11300
4-2	39	53	8	9300
5-1	40	54	6	9700
5-2	41	49	10	9200
5-3	39	46	15	8600
6-1	43	55	2	13400
6-2	43	53	4	13100
7-1	40	58	2	12900
7-2	40	56	4	12300
8-1	44	53	3	11800
8-2	42	54	4	12000
9-1	46	51	3	11000
9-2	49	47	4	11300
9-3	48	47	5	11800
10-1	44	54	2	12200
10-2	45	52	3	11800
11-1	48	49	3	13100
11-2	49	46	5	13400
12-1	50	48	2	11900
12-2	49	47	4	11800
13-1	47	51	2	12100
13-2	48	48	4	12900
14-1	49	48	3	11200
14-2	47	49	4	11400

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N.o.	樹脂	光酸発生剤	アミン	パターンプロファイル	現像欠陥数	コタクホールの解像力(μm)
実施例1	1-1	PAG-1	2	○	60	0.21
実施例2	1-3	PAG-2	1	○	70	0.21
実施例3	2-1	PAG-3	1	○	60	0.22
実施例4	2-2	PAG-1	1	○	80	0.22
実施例5	3-1	PAG-1	1	○	70	0.21
実施例6	3-2	PAG-3	2	○	90	0.21
実施例7	4-1	PAG-1	1	○	80	0.22
実施例8	4-2	PAG-1	1	○	60	0.22
実施例9	5-1	PAG-2	1	○	70	0.21
実施例10	5-2	PAG-1	1	○	90	0.22
実施例11	5-3	PAG-3	1	○	80	0.21
実施例12	6-1	PAG-2	1	○	90	0.22
実施例13	6-2	PAG-2	1	○	80	0.22
実施例14	7-1	PAG-1	2	○	80	0.22
実施例15	7-2	PAG-3	1	○	90	0.22
実施例16	8-1	PAG-2	1	○	80	0.22
実施例17	8-2	PAG-2	1	○	80	0.22
実施例18	9-1	PAG-3	1	○	50	0.20
実施例19	9-2	PAG-2	2	○	50	0.20
実施例20	9-3	PAG-2	1	○	50	0.20
実施例21	10-1	PAG-1	1	○	50	0.20
実施例22	10-2	PAG-2	1	○	50	0.20
実施例23	11-1	PAG-2	1	○	45	0.20
実施例24	11-2	PAG-2	1	○	45	0.20
実施例25	12-1	PAG-3	1	○	45	0.20
実施例26	12-2	PAG-2	1	○	45	0.20
実施例27	13-1	PAG-1	1	○	80	0.22
実施例28	13-2	PAG-3	2	○	90	0.22
実施例29	14-1	PAG-1	1	○	80	0.22
実施例30	14-2	PAG-1	1	○	90	0.22
比較例1	R1	PAG-1	2	×	6000	0.25
比較例2	R2	PAG-1	2	×	2000	0.24

No.	樹脂	光酸発生剤	W 剤	アミン	パターンプロファイル	現像欠陥数	コウトホールの解像力(μm)
実施例 31	1-2	PAG-1	W-1	1	○	50	0.20
実施例 32	1-3	PAG-3	W-2	2	○	50	0.20
実施例 33	2-1	PAG-3	W-3	1	○	45	0.20
実施例 34	2-2	PAG-1	W-4	1	○	75	0.22
実施例 35	3-1	PAG-3	W-1	2	○	50	0.20
実施例 36	3-2	PAG-3	W-2	1	○	60	0.20
実施例 37	4-1	PAG-1	W-3	1	○	50	0.20
実施例 38	4-2	PAG-3	W-4	1	○	60	0.22
実施例 39	5-1	PAG-3	W-2	1	○	55	0.20
実施例 40	5-2	PAG-1	W-3	1	○	60	0.20
実施例 41	5-3	PAG-3	W-1	2	○	50	0.20
実施例 42	6-1	PAG-3	W-2	1	○	50	0.20
実施例 43	6-2	PAG-3	W-3	1	○	45	0.20
実施例 44	7-1	PAG-1	W-4	1	○	75	0.22
実施例 45	7-2	PAG-2	W-1	1	○	55	0.20
実施例 46	8-1	PAG-3	W-2	2	○	50	0.20
実施例 47	8-2	PAG-2	W-3	1	○	50	0.20
実施例 48	9-1	PAG-1	W-1	1	○	30	0.19
実施例 49	9-2	PAG-3	W-2	1	○	30	0.19
実施例 50	9-3	PAG-2	W-4	1	○	30	0.20
実施例 51	10-1	PAG-3	W-1	1	○	30	0.19
実施例 52	10-2	PAG-3	W-2	2	○	30	0.19
実施例 53	11-1	PAG-2	W-3	1	○	25	0.19
実施例 54	11-2	PAG-2	W-4	1	○	35	0.19
実施例 55	12-1	PAG-2	W-1	1	○	25	0.19
実施例 56	12-2	PAG-1	W-4	1	○	35	0.20
実施例 57	13-1	PAG-1	W-2	2	○	55	0.20
実施例 58	13-2	PAG-2	W-3	1	○	50	0.20
実施例 59	14-1	PAG-2	W-1	1	○	55	0.20
実施例 60	14-2	PAG-2	W-1	1	○	50	0.21
比較例 3	R1	PAG-1	W-1	1	×	4000	0.24
比較例 4	R2	PAG-1	W-1	1	×	1800	0.23

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